

Remarks

I. Status of Claims

Claims 1-5, 7-11, 13 and 14 are pending in the application. Claims 1 and 8 are independent.

Claims 1-5, 7 and 13 are rejected under 35 USC 103(a) as allegedly being unpatentable over Buchner et al. (DE 196 49 434 C1) (“Buchner”) in view of Yi et al. (USP 6,586,123) (“Yi”), in view of Uozumi (USP 6,709,779) (“Uozumi”), and further in view of Acker (USP 6,322,917) (“Acker”).

Claims 8-11 and 14 are rejected under 35 USC 103(a) as allegedly being unpatentable over Buchner et al., in view of Muchinc et al. (USP 6,558,824) (“Muchinc”), in view of Yi, in view of Uozumi, and further in view of Acker.

Claim 1 is rejected under 35 USC 103(a) as allegedly being unpatentable over Buchner, in view of Yi, in view of Uozumi, and further in view of Saito et al. (US 2004/0106022) (“Saito”).

Claim 8 is rejected under 35 USC 103(a) as allegedly being unpatentable over Buchner, in view of Muchinc, in view of Yi, in view of Uozumi, and further in view of Saito.

The Applicant respectfully requests reconsideration of these rejections in view of the following remarks.

II. Perfection of Priority and Removal of Saito reference

In a separate paper, the Applicant submitted a verified English translation of the Priority Document (Japanese Patent Application No. 2002-364694), which perfects the priority date of December 17, 2002. The Applicant respectfully submits that, since for reference publications and patents of patent applications filed under 35 U.S.C. 111 (a), the prior art dates under 35 U.S.C. 102 (e) accorded to these references are the earliest effective U.S. filing dates (no benefit of the filing date of the foreign application is given under 35 U.S.C. 102 (e) for prior art purposes (In re Hilmer, 149 USPQ 480 (CCPA 1966))), the effective filing date of the Saito patent publication is November 19, 2003, which is subsequent to the Applicant’s perfected priority date of December 17, 2002.

III. Pending Claims

Claim 1 stands rejected under 35 USC 103(a) as allegedly being unpatentable over Buchner in view of Yi, in view of Uozumi, and further in view of Acker.

Claim 1 also stands rejected under 35 USC 103(a) as allegedly being unpatentable over Buchner, in view of Yi, in view of Uozumi, and further in view of Saito.

Claim 8 stands rejected under 35 USC 103(a) as allegedly being unpatentable over Buchner, in view of Muchinc in view of Yi, in view of Uozumi, and further in view of Acker.

Claim 8 also stands rejected under 35 USC 103(a) as allegedly being unpatentable over Buchner, in view of Muchinc, in view of Yi, in view of Uozumi, and further in view of Saito.

The Applicant respectfully submits that claims 1 and 8 are patentable over the cited references at least because they recite, "...introducing a cooling medium into a passage within the fuel cell" and "...changing a temperature of the cooling medium when measuring the voltage of each cell."

On pages 3 and 6, the Office Action recognizes that "[N]either Buchner nor Yi discloses [sic] explicitly introducing a cooling medium into a battery of the fuel cell; and changing a temperature of the cooling medium when measuring the voltage of each cell."

In order to address these deficiencies, the Office Action cites Uozumi for disclosing "[I]n Figures 1-24, a cooling medium (see figure 15 element 10) into a passage with the fuel cell (see column 1, lines 59-65, Column 2, lines 15-20)." The Office Action alleges that it would have been obvious to a person having ordinary skill in the art at the time of the invention to use cooling medium as taught by Uozumi in Buchner's Fuel cell test system in order to increase the operating efficiency of the fuel cell and prevent any fuel cell damage due to heat. The Applicant respectfully disagrees.

On pages 3-4 and 6-7, the Office Action also alleges that "Acker disclosed in Column 9, lines 18-22, changing a temperature of the cooling medium when measuring the voltage of each cell (Noted that the Fuel cell voltage measurement can take the temperature of the fuel cell as a variable, therefore this temperature variable can be changed when fuel cell voltage is measured.)" The Office Action alleges that it would have been obvious to a person having ordinary skill in the art at the time of the invention to monitor a voltage of a fuel cell while

temperature change is occurred as taught by Acker in Buchner Fuel cell test system in order to monitor/determine abnormalities that may occur in the fuel cell.

The Applicant respectfully submits that one having ordinary skill in the art would not have been motivated to combine Uozumi and Acker, with Buchner and Yi, as asserted by the Examiner because, at the very least, Uozumi and Acker are both directed to fuel cells that are in the normal operational state. More specifically, the fuel cells described in Uozumi and Acker are being fed a combination of fuel and oxidant gas to generate electricity. It appears that the Examiner is citing Uozumi for teaching the introduction of a cooling medium into the fuel cell to manage the temperature of the fuel cell, while Acker is cited for allegedly teaching the changing of the temperature of the fuel cell when measuring the voltage of the fuel cell.

However, the method described in Buchner is directed to a fuel cell in which fuel gas and an inert gas are being fed to a fuel cell. As such, in the fuel cell according to Buchner, the reaction to generate electricity, as described in Uozumi and Acker, is not occurring, or at least not occurring to the extent that it would in the normal operational state of the fuel cell. That being said, the Applicant respectfully submits that, logically, because the typical reactants that are used in the fuel cell reaction are decreased (e.g., the oxidant in the fuel cell reaction is missing or present only in miniscule quantities) it is unlikely that the temperature of the fuel cell under the conditions specified in Buchner will be as high as it would be in the normal operational state of the fuel cell. Accordingly, it seems that there would be no need to regulate the temperature of the fuel cell in order to **“prevent any fuel cell damage due to heat”** as asserted by the Examiner on page 3 of the Office Action.

Likewise, Acker appears to address a problem that would not occur in the fuel cell operating under the conditions according to Buchner. In particular, Acker describes a method of controlling the preferred oxidation of carbon monoxide in a fuel cell. Furthermore, the specific portion of the reference cited by the Examiner appears to indicate that it is the temperature of the gas flowed into the reformer/shift reactor that is used to determine the effect on the voltage output of the fuel cell.

For at least these reasons, the Applicant respectfully submit that one of ordinary skill in the art would not have been motivated to combine the teachings of the cited references as suggested by the Examiner, as there would have been no technical reason to do so.

In addition, the Applicant respectfully submits that since the Applicant's diagnostic method for a fuel cell is not suggested by Buchner or Yi, and there is not any reason in the prior art itself for making the combination as asserted by the Examiner, it appears the Examiner is relying upon improper hindsight to use Applicant's invention as a blueprint to pick and choose unrelated features of unrelated references to reproduce Applicant's invention.

Accordingly, the Applicant respectfully submits that the rejections relying on Buchner and Uozumi/Acker should be removed. Further, with respect Saito, since the Applicant has perfected priority by submitting a certified translation of the priority document, the Applicant respectfully submits that the rejections based on Saito should be withdrawn.

Therefore, the Applicant respectfully submits that, for at least these reasons, claims 1 and 8, as well as their dependent claims, are patentable over the cited references.

IV. Conclusion

In light of the above discussion, the Applicant respectfully submits that the present application is in all aspects in allowable condition, and earnestly solicits favorable reconsideration and early issuance of a Notice of Allowance.

The Examiner is invited to contact the undersigned at (202) 220-4420 to discuss any matter concerning this application. The Office is authorized to charge any fees related to this communication to Deposit Account No. 11-0600.

Respectfully submitted,

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